AMENDMENTS TO THE SPECIFICATION

Before paragraph [0001], insert:

This application is a divisional of Serial No. 10/064,754; filed on August 14, 2002. PAT 6,803,269

Amend paragraphs [0026] and [0028] as follows:

[0026] Then a second implant is carried out to form regions 24. These regions provide the hyperabrupt profile required for high performance varactors. The dopant can be phosphorous, arsenic, or antimony, at a dose of between approximately ~~1x1011 to 1x1014 atoms/cm2~~ $1x10^{11}$ to $1x10^{14}$ atoms/cm^2 and at an energy between approximately 10-40Kev, most preferably a concentration of approximately ~~1x1011~~ $1x10^{11}$ atoms/cm^2 and an energy of 170Kev for implanted Sb. Note that the resulting diffusion regions extend beneath the mask structures 16A, toward one another but separated by a portion of n-well 12V. This is important because the region under the gate is usually the lowest doped portion of the well. Because it is low doped, it readily depletes under reverse bias so that the tuning range is increased. However, both sides are depleting (under 16A), and if the depletion regions touch then the capacitance will be pinned (truncating the tuning range). In practice, this profile is preferably achieved by angling the implant to be between approximately 7 and 60 degree with respect to the plane of the substrate. This profile could also be achieved by carrying out a sequence of vertical implants at varying doses and energies, or by combining vertical and angled implants. This implant beneath the mask structures 16A maximizes tunability by maximizing the area of the final implant regions that remain after the counterdoping process, described below, which forms the P+ part of the p-n junction varactor (that is, prior to the implant step described below, regions 24 laterally extend to adjacent side surfaces of the isolation regions 14). At the same time, the lateral nature of this implant minimizes distortion of the desired hyperabrupt doping profile, which maximizes both linearity and Q. Thus, a high Q is achieved using the high-energy implant without sacrificing tunability.